# ITS Operational Test Summary
## CRESCENT

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**Introduction**

The Crescent Project was the demonstration phase of the Heavy Vehicle Electronic License Plate (HELP) program. This project was the first major ITS initiative in the U.S. in the commercial vehicle operations (CVO) field. Conceived in 1983, HELP was a multi-state, international, and public/private research project to design and test integrated technical solutions to problems of CVO roadside enforcement, administration, and operational management. The Crescent system integrated the use of Automatic Vehicle Identification (AVI), automatic Vehicle Classification (AVC), Weigh-In-Motion (WIM), and electronic data communication technologies to electronically screen commercial motor vehicles.

The Program helped state, motor carrier industry, and ITS system and services provider participants to determine the benefits and obstacles of HELP services through real-world experience. The HELP program evolved over time, adding to developing, and refining the services conceived at its inception. The resulting objective of the Crescent Project was to enable a legal truck to drive along the entire project roadway network without having to stop at weigh stations or ports of entry.

The operational testing phase began in 1991 and finished in September 1993.

**Project Description**

Crescent established approximately 40 specially equipped weigh station and port of entry sites along a corridor from British Columbia south along I-5 through California, then east along I-10 to Texas, and branching onto I-20 (hence the name Crescent). A central computer processed the vehicle information gathered from transponder-equipped trucks using the WIM, AVI, and AVC technologies. Trucks that were properly identified and within legal weight limits were allowed to bypass the test sites.

Figure 1 presents a schematic view of the information included in the Crescent test.

The Crescent project evaluation was comprised of the five test areas:

- On site Analusis of HELP Technologies and Operations - Primary source of data on the performance of individual system components and performance of the integrated system
- State Agency Case Study - Primary source of data on institutional issues affecting implementation and performance
- Motor carrier Case Study - Primary source of data on industry acceptance issues affecting implementation and performance

- Crescent Computer System Components - Primary source of data on the computer platform that integrates the other technologies into systems that provide CVO services
- Crescent Demonstration Office - Primary source of data on the operations of the central "service provider" responsible for data input, processing, and distribution for the HELP applications tested

The information gathered and lessons learned during the conduct of the test were compiled by the evaluation team. The team identified six potential CVO service categories and integrated the test results to draw conclusions about particular CVO services. The evaluation team judged each service category using measures that included benefits to industry, institutional support and/or barriers, industry support and/or barriers, and technical feasibility and development.

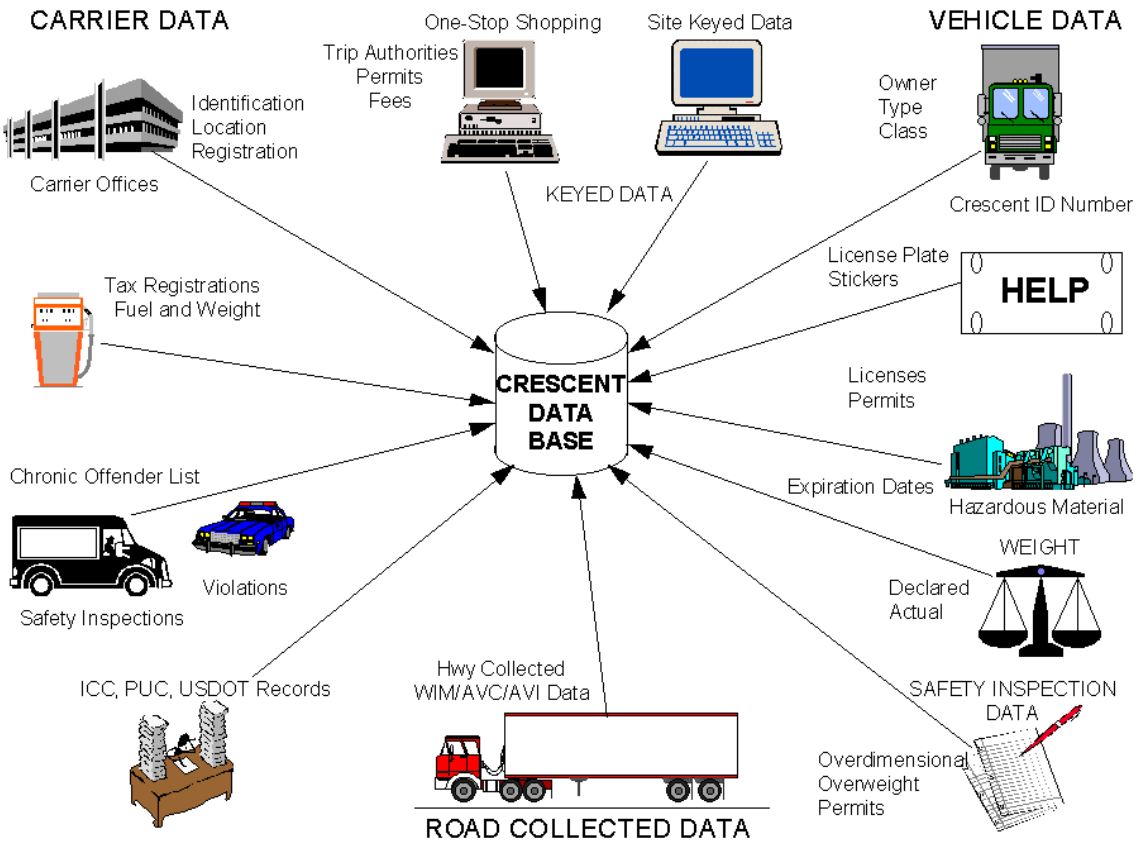


**Figure 1: Crescent Information**

**Results**

The evaluator's conclusions may be summarized in several broad statements that convey the most important results. Generally, HELP technologies and procedures performed adequately and were not a barrier to deployment. The greatest obstacles to the feasibility

and effectiveness of CVO services are institutional issues. Some of these issues are government policies that prevent electronic data collection and sharing, lack of commitment by senior state government management, and a lack of training and resources for state employees who operate the system. State agency through architecture and standards development.

Conclusions for the six potential CVO service categories as identified by the evaluation team are as follows:

- Roadside dimension and weight compliance clearance - This service was found to be the closest to being ready for deployment. It offers benefits from improved road safety, more efficient enforcement, reduced emission, and reduced weigh station stops. It has the fewest institutional and industry barriers, and technologically it was successfully demonstrated
- Pre-clearance of vehicles with proper documents - This service was also a highly leveraged CVO service and was seen as a priority area for refinement and deployment. It may provide high benefits to both states and carriers and could be accomplished with available technologies. It has somewhat higher institutional barriers to overcome than other preclearance services
- Government planning - This service was the third highly leveraged CVO service and was also identified as a priority area for refinement and deployment. It could provide benefits to states through better and more timely road use data, could be accomplished at low additional cost with available technologies, and has almost no institutional barriers to overcome
- Government audits of carrier records - This service could improve the accuracy and reduce costs of state audits, but has little leverage. Benefits accrue only to states, while significant institutional and industry barriers exist. Automated safety inspection audits were considered before other audit areas.
- Government processing of CVO documents - This service is important in order for other services to be effective and could also improve the effective and could also improve the efficiency of the credentialling process. However, it faces high institutional barriers
- Industry administration of divers and vehicles - This service faces no institutional barriers, few industry barriers, but provides relatively minor industry benefits. Other systems are likely to better support this service.

**Legacy**
HELP, Inc., a not for profit corporation, was concluding. It currently offers PrePass, a weigh station by-pass service in California and other western states. HELP, Inc. is also involved in subsequent operational tests including the Commercial Vehicle Operations One-Stop Electronic Purchasing and Processing Operational Test (HELP One-Stop).

**Test Partners**
Castle Rock Consultants
Federal Highway Administration (FHWA)
International Road Dynamics Inc.

Lockheed Integrated Systems Company
State DOTs from California, Washington, Oregon, Arizona, New Mexico and Texas
Western Highway Institute / ATA Foundation
WHM Transportation Engineering Consultants, Inc.

**References**

The Crescent Evaluation Team. The Crescent Project: An Evaluation of an Element of the HELP Program, Executive Summary, February 1994